Infrastructure emergency levels of service for the Wellington region

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After a major earthquake, there will be damage, but what 'level of service' should I expect from the lifeline utilities?

- What is a reasonable distance to walk to the supermarket? 2km? 3km 5km?
- Where should the power be 'guaranteed' to? (Perhaps key facilities such as the hospital?)
- How much water should I be able to collect, and from what distance from home?

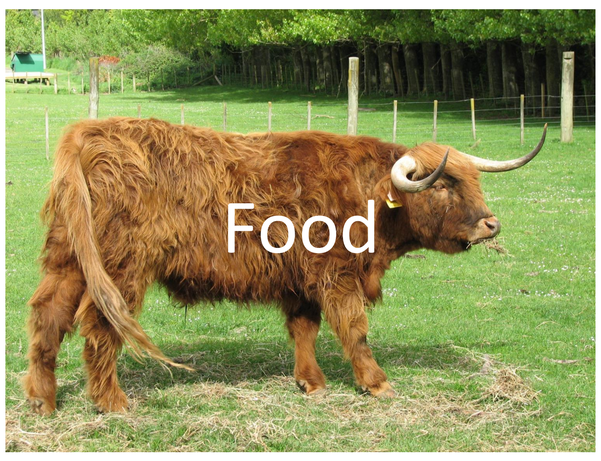
If we can describe some **'infrastructure emergency levels of service'** could we then put them into a framework?

What is an 'emergency level of service'?

The term 'levels of service' is used in this research as it is a commonly used term in infrastructure Asset Management practices (Edwards, 2010). If described well, such descriptions should also be able to be understood by lay persons. Adding the word 'emergency' shows that this measure is specific to the level of service to be delivered in an emergency or disaster event.

Research question (provisional): Can a framework be developed that orders recommended levels of service across utilities that define individual needs following an emergency event for a post-disaster urban, high-income context?

- Is the concept of 'emergency levels of service' useful for thinking of 'what resilience is'?
- Is a framework created from a literature review relevant to the Wellington region?
- Can emergency levels of service from different infrastructure sectors either be defined, or can factors be identified that would allow emergency levels of service to be defined?
- If a framework could be developed, what are the impediments (if any) to individual lifeline utilities adopting that framework?
- If a framework can be developed, will it be universally applicable to all contexts and scenarios?
- Can any resulting framework be used to demonstrate whether the recommended levels of service can be achieved in an example context?



Research process: this will be a PhD by publication, provisionally using an 'action research' methodology. The steps to be taken, and the papers proposed to be written, are:

McNiff (2013) research process	Step in this research	Proposed research paper
"We review our current practice;	Background, context and literature review.	Paper 1: Planning infrastructure levels of service for the Wellington region – a literature review
identify an aspect we wish to investigate;		
ask focussed questions about how we can investigate it;		
imagine a way forwards;	Create a theoretical framework from sources gathered from the literature review.	Paper 2: Post-disaster planning levels of service for infrastructure delivery in the Wellington region – a proposed conceptual framework
try it out, and take stock of what happens;	Improve the above framework ('operationalise' it) through involvement with sector and industry experts and updating as necessary.	Paper 3: Post disaster planning levels of infrastructure levels of service for the Wellington region – operationalising a proposed framework
modify our plan in light of what we have found, and continue with the action;		
evaluate the modified action;	Test the operationalised framework against infrastructure outages modelled for the Wellington region by previous studies and look towards potential further work, beyond this research.	Paper 4: Post disaster planning levels of infrastructure levels of service for the Wellington region – a gap analysis
and reconsider what we are doing in light of the evaluation. This can then lead to		
a new action-reflection cycle.		

Who will we discuss (and agree?) the levels of service with?

While a research project, this work is also a 'live' Wellington Lifelines Group (WeLG) project. In combination, this research and the WeLG project will create a set of emergency levels of service for the Wellington region.

WeLG includes the utilities of the region across the energy, telecommunications, transport and water sectors.

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